

UNIDAD DIDÁCTICA INTEGRADA 1: INTRODUCCIÓN A LAS CIENCIAS SOCIALES

ANL: MATEMÁTICAS Y CIENCIAS SOCIALES

LENGUAS: L1, L2 (INGLÉS) Y L3 (FRANCÉS)

CONTENIDOS: La unidad didáctica siguiente parte de los contenidos de CCSS y para desarrollarlos se utilizan herramientas básicas de matemáticas como la escala, os diagramas de sectores,...; en cuanto a la lengua vehicular, se necesitan algunos contenidos imprescindibles (por ejemplo el pasado en la introducción a la historia) que damos en la tabla adjunta. En Inglés y francés se dará desde cada área el vocabulario específico: cartesian coordinates system, ...en Matemáticas; meridian, ecuator line,... en CCSS, etc.

UNIDAD 1	MATEMÁTICAS	CCSS	INGLÉS	LENGUA	FRANCÉS
1.1 INTRODUCCIÓN A LA GEOGRAFÍA: La representación de la Tierra.	Coordenadas. Proporciones; la escala. Gráficos estadísticos. El SMD: Longitud Ángulos. Medidas (grados, minutos y segundos)	Los mapas. Tipos Los puntos cardinales Paralelos y meridianos Latitud y longitud La escala	El verbo ser y el haber El verbo tener. Is/are called, is/are named (para dar definiciones) Vocabulario: El plano de tu casa Mapa de España y de Reino Unido.	El texto expositivo: las definiciones,...	
1.2 INTRODUCCIÓN A LA HISTORIA La historia, el estudio del pasado	Números naturales y significado de los números negativos. Números romanos	El tiempo: calendario y cronología Unidades: décadas, siglos, milenios,...	El pasado y el presente de: suceder, vivir, nacer, ... Los interrogativos Vocabulario: parentescos, datos de una persona,...	El pretérito en la narración. La biografía La entrevista	

COMPETENCIAS:

En esta unidad integrada se trabajan todas las competencias.

VOCABULARIO

Términos: Décadas siglos, milenios, eras,...

Etapas de la Historia: prehistoria, Edad media,...

Meridianos, paralelos,...

Ejes coordenados, ángulos, ...

Pulgada, pie,...

LECTO-ESCRITURA.

Se pueden trabajar textos en las áreas no lingüísticas y en las Lenguas (español, inglés y francés) por ejemplo sobre lo siguiente:

- Hillary, desde el techo del mundo (del libro de texto de CCSS)
- El Sistema Métrico Decimal (Origen y evolución)
- Greenwich
- Breves biografías: Descartes, ...

Lengua 1

- Biografía, la historia de una persona. Redactar una biografía a partir de unos datos. Autobiografías.
- Trabajar biografías de personajes anteriores y posteriores a Cristo.
- Hacer una entrevista

Lengua 2

- Uso de los interrogativos: ¿Qué? ¿Cuándo? ¿Cómo?...
¿Cuándo sucedió? ¿Dónde? ¿Qué pasó? ¿Quiénes lo protagonizaron?
- Parentescos. Árbol genealógico de tu familia.
- Rellenar una ficha con los datos más importantes de una persona (nombre, dirección, población,...)

ACTIVIDADES

- Árbol genealógico de tu familia
- Elaborar una biografía y su autobiografía
- Elaborar ejes cronológicos

TEMAS TRANSVERSALES

Valorar las distintas culturas: Comparar unidades de longitud utilizadas en España con las utilizadas en el Reino Unido (inch, foot,...)

TEMPORALIZACIÓN

Teniendo en cuenta el número de unidades didácticas que tenemos que secuenciar en CCSS y correlacionar con Matemáticas para impartir todos los contenidos, el tiempo sería una quincena para cada parte de la unidad integrada. Los contenidos de las

Lenguas se desarrollan a lo largo del curso atendiendo a los textos que se van a utilizar en cada materia y a través de las unidades didácticas del currículum integrado.

RECURSOS

- **Math Mastery videos (videos howstuffworks.com)**

Videos cortos y sencillos (menos de 2 minutos) muy sencillos por ser de primaria pero muy útiles en Matemáticas Bilingüe para que los alumnos practiquen listening sobre los símbolos matemáticos (addition, plus,...) y también las explicaciones y otro vocabulario a través de problemas.

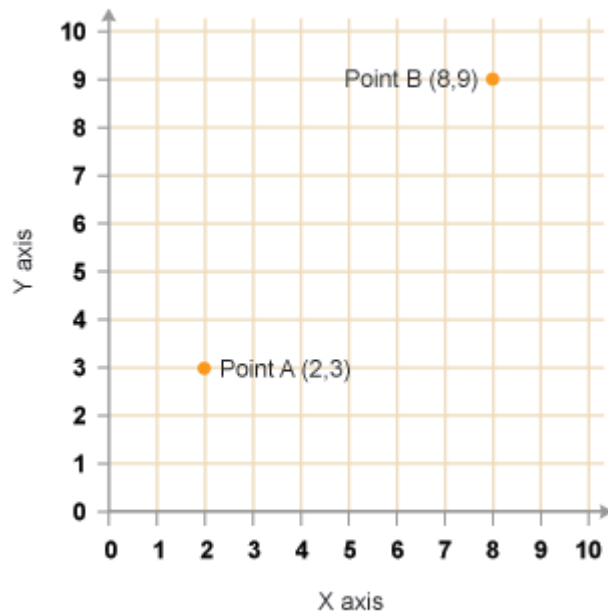
- **Maths videos BBC**

Se puede trabajar con actividades on- line y además conseguir hojas de trabajo con imágenes y vocabulario.

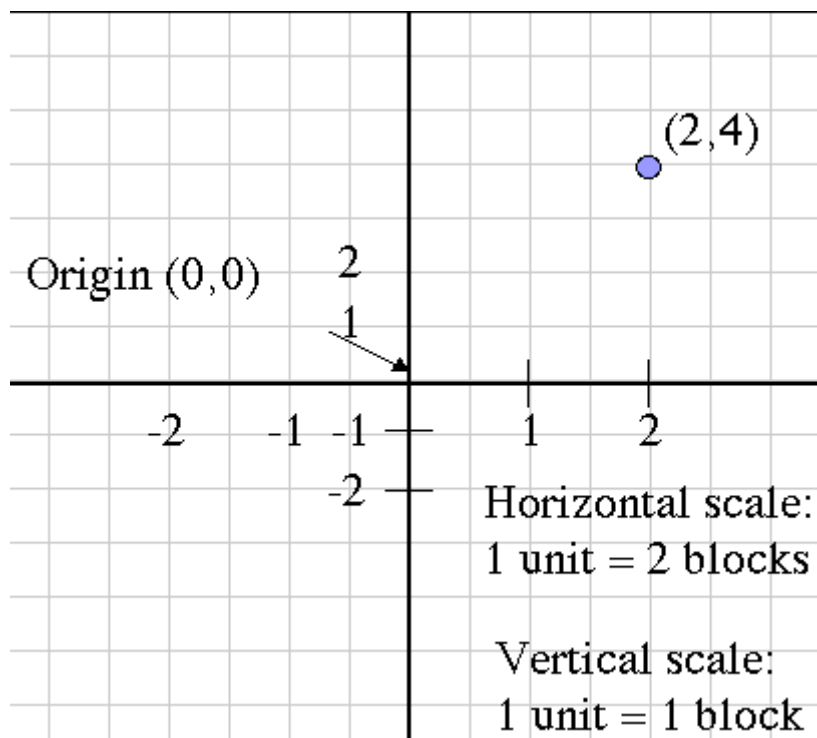
- Otros recursos en español como las unidades didácticas del **programa Descartes**.
- Videos matemáticos de **Youtube**

ANEXO: MUESTRA DE RECURSOS QUE SE PUEDEN ENCONTRAR EN LA RED PARA ADAPTARLOS AL GRUPO Y AL ALUMNO/A EN CONCRETO.

Para usar coordenadas podemos empezar por el primer cuadrante y cuando lo dominen y se haya explicado el significado de los números negativos se trabaja en los cuatro cuadrantes.



Para trabajar en los cuatro cuadrantes se puede asignar Norte-Sur al eje de ordenadas y Este -Oeste al eje de abscisas y explicar en los términos: 2 hacia el este, 4 hacia el norte,...



Actividades reales para trabajar los cambios de unidades:

Map Activity

Use the map provided by your teacher.

You are planning a trip from _____ to _____ on Highway

_____.
(city name) (city name) (Route)

You want to determine the distance between these cities by using the map. On the map, locate the legend showing the scale of miles and answer the following questions.

1. How many miles are represented by 1 inch on the map?
2. How many inches represent 5 miles? How did you get your answer?
3. How many inches are there between the two cities listed above?
4. How many miles are there between these two cities?

Texto para lecto-escritura. Se puede adaptar a cada una de las lenguas dependiendo de las competencias de los alumnos.

The Cartesian coordinate system was formalized by Rene Descartes in the 17th century to help visualize functions via plotting function values as ordered pairs. The story of how the system was developed is that Descartes was sick. As Rene' Descarte lay in bed sick, he saw a fly buzzing around on the ceiling. His ceiling was made of square tiles. As he watched, he realized that he could describe the position of the fly by the ceiling tile he was on. After this experience, he developed the Cartesian coordinate system in the 17th century to help visualize functions via plotting function values as ordered pairs. In this system a grid of evenly spaced horizontal and vertical lines is drawn, a center or "origin" is chosen, and horizontal and vertical scales are chosen.

Notice that the horizontal and vertical scales are different but each one considered alone is evenly spaced. Also, the blue point is labeled with its *Cartesian coordinates*, the horizontal and vertical movement from the origin, in that order. This is the mathematical convention for naming points.

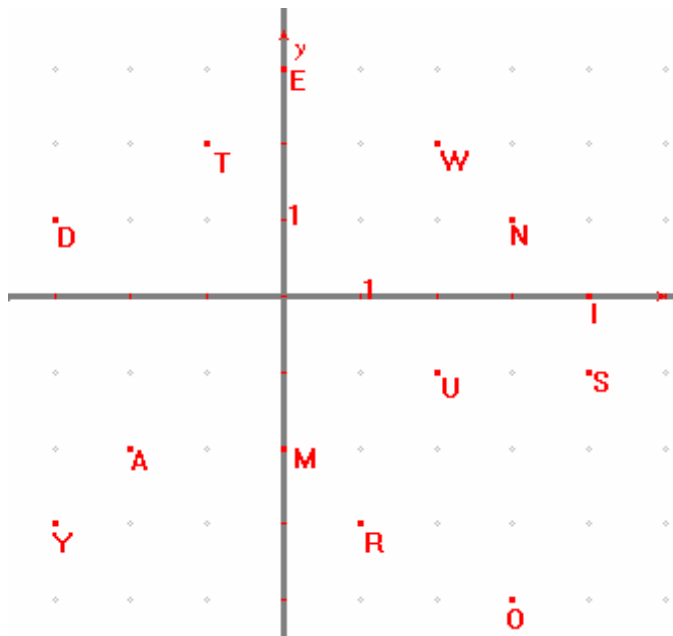
Another name for the horizontal movement value is the *abscissa*, and the vertical movement is the *ordinate*. These terms are more rare now than they used to be but you might still hear them being used.

Actividades para profundizar en los contenidos:

COORDINATES AND GRAPHS 1

1. Using these coordinate pairs, you have to find one sentence.

$(-3, 1)$; $(3, -4)$; $(3, 1)$; $(3, -4)$; $(-1, 2)$; $(2, 2)$; $(-2, -2)$; $(4, -1)$; $(-1, 2)$; $(0, 3)$;
 $(-3, -3)$; $(3, -4)$; $(2, -1)$; $(1, -3)$; $(-1, 2)$; $(4, 0)$; $(0, -2)$ y $(0, 4)$



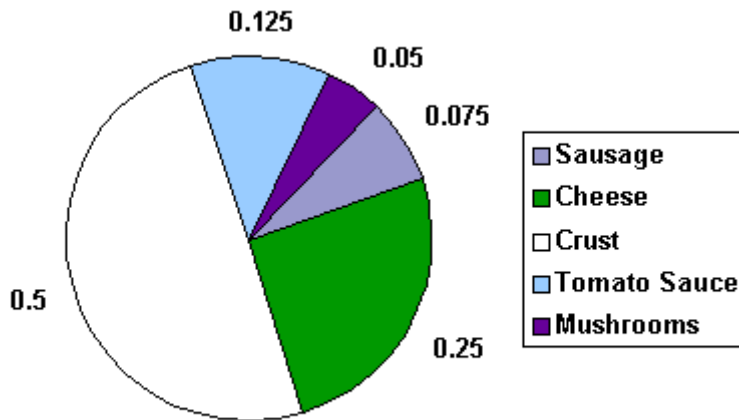
Otros recursos que se pueden encontrar utilizando páginas web:

Pie Charts

A pie chart is a circle graph divided into pieces, each displaying the size of some related piece of information. Pie charts are used to display the sizes of parts that make up some whole.

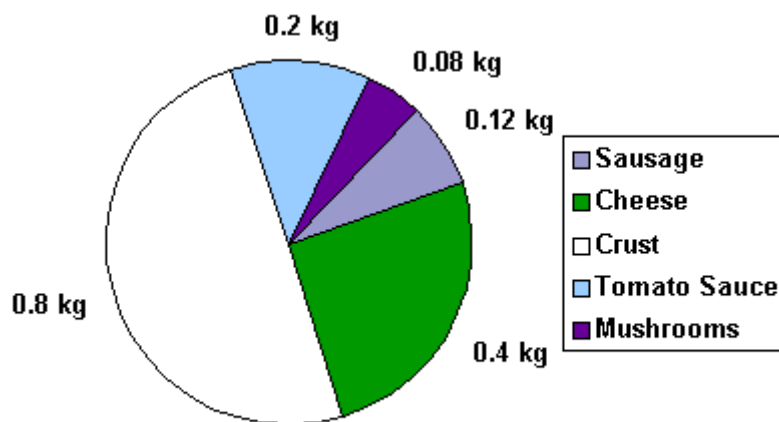
Example 1:

The pie chart below shows the ingredients used to make a sausage and mushroom pizza. The fraction of each ingredient by weight is shown in the pie chart below. We see that half of the pizza's weight comes from the crust. The mushrooms make up the smallest amount of the pizza by weight, since the slice corresponding to the mushrooms is smallest. Note that the sum of the decimal sizes of each slice is equal to 1 (the "whole" pizza).



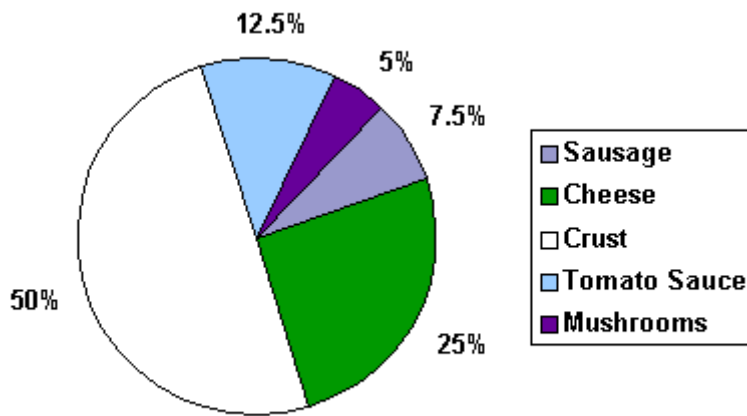
Example 2:

The pie chart below shows the ingredients used to make a sausage and mushroom pizza weighing 1.6 kg. This is the same chart as above, except that the labels no longer tell the fraction of the pizza made up by that ingredient, but the actual weight in kg of the ingredient used. The sum of the numbers shown now equals 1.6 kg, the weight of the pizza. The size of each slice is still the same, and shows us the fraction of the pizza made up from that ingredient. To get the fraction of the pizza made up by any ingredient, divide the weight of the ingredient by the weight of the pizza. What fraction of the pizza does the sausage make up? We divide 0.12 kg by 1.6 kg, to get 0.075. This is the same value as in the pie chart in the previous example.



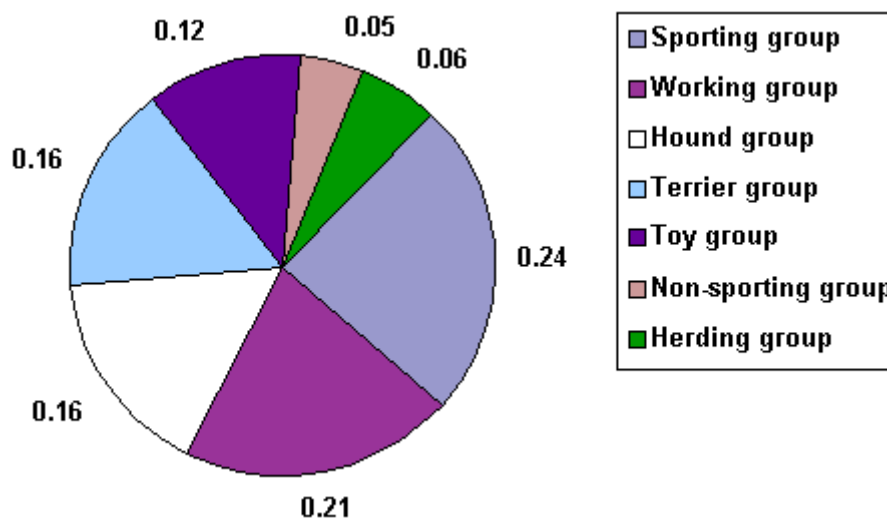
Example 3:

The pie chart below shows the ingredients used to make a sausage and mushroom pizza. The fraction of each ingredient by weight shown in the pie chart below is now given as a percent. Again, we see that half of the pizza's weight, 50%, comes from the crust. Note that the sum of the percent sizes of each slice is equal to 100%. Graphically, the same information is given, but the data labels are different. Always be aware of how any chart or graph is labeled.



Example 4:

The pie chart below shows the fractions of dogs in a dog competition in seven different groups of dog breeds. We can see from the chart that 4 times as many dogs competed in the sporting group as in the herding group. We can also see that the two most popular groups of dogs accounted for almost half of the dogs in the competition. Suppose 1000 dogs entered the competition in all. We could figure the number of dogs in any group by multiplying the fraction of dogs in any group by 1000. In the toy group, for example, there were $0.12 \times 1000 = 120$ dogs in the competition.

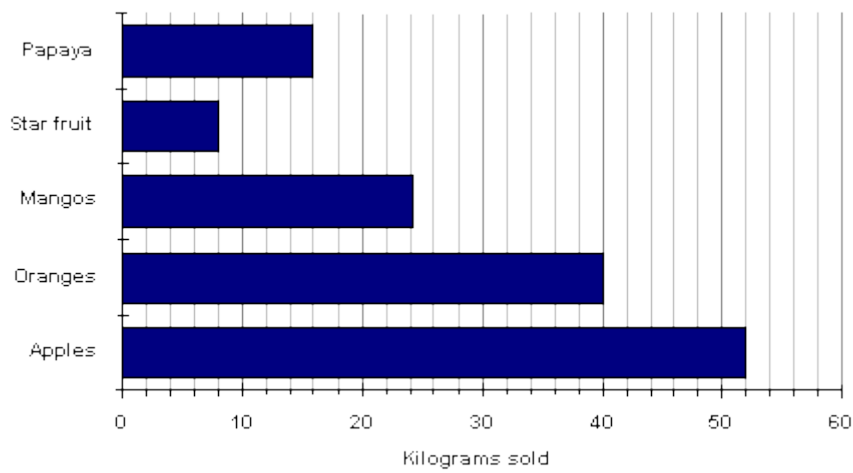


Bar Graphs

Bar graphs consist of an axis and a series of labeled horizontal or vertical bars that show different values for each bar. The numbers along a side of the bar graph are called the scale.

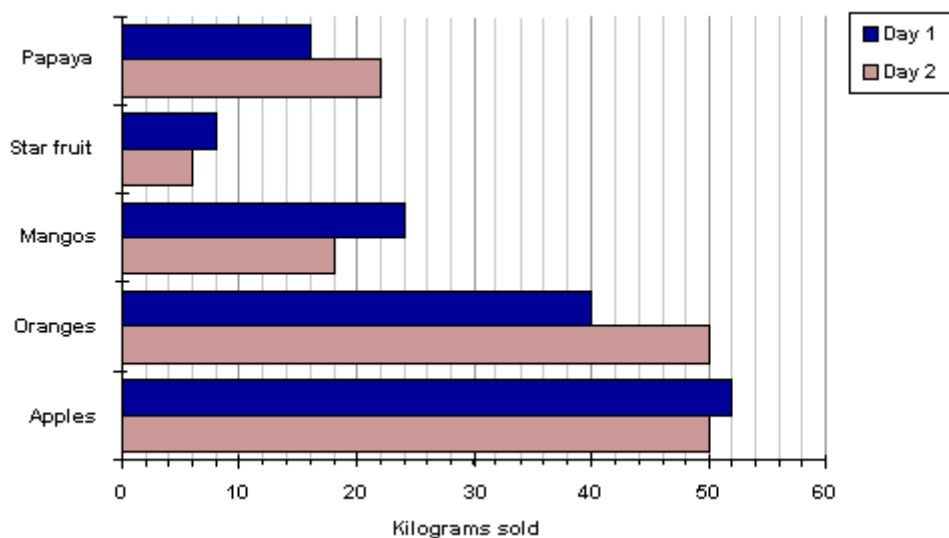
Example 1:

The bar chart below shows the weight in kilograms of some fruit sold one day by a local market. We can see that 52 kg of apples were sold, 40 kg of oranges were sold, and 8 kg of star fruit were sold.



Example 2:

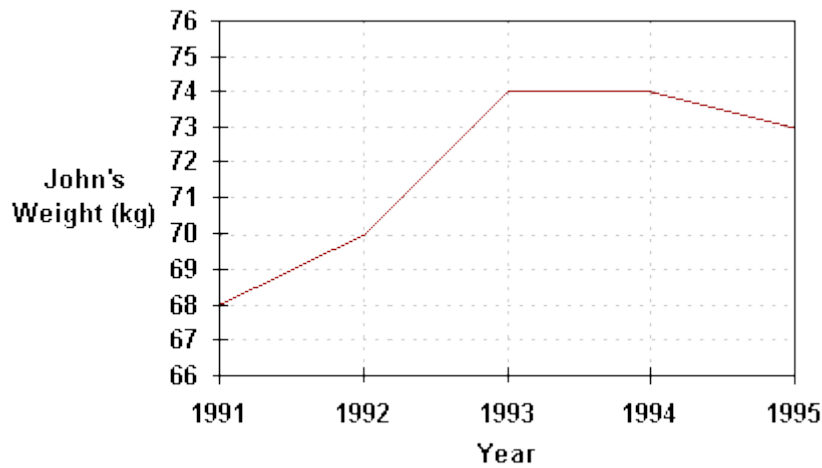
A double bar graph is similar to a regular bar graph, but gives 2 pieces of information for each item on the vertical axis, rather than just 1. The bar chart below shows the weight in kilograms of some fruit sold on two different days by a local market. This lets us compare the sales of each fruit over a 2 day period, not just the sales of one fruit compared to another. We can see that the sales of star fruit and apples stayed most nearly the same. The sales of oranges increased from day 1 to day 2 by 10 kilograms. The same amount of apples and oranges was sold on the second day.



Line Graphs

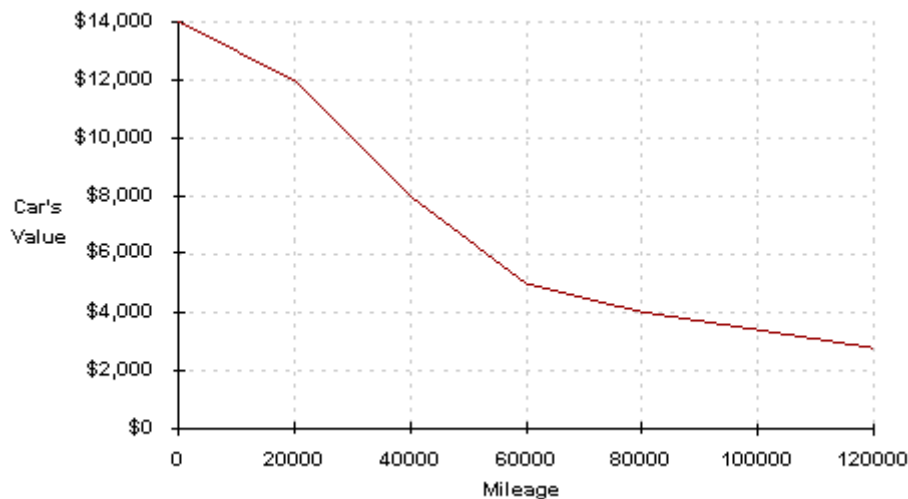
A line graph is a way to summarize how two pieces of information are related and how they vary depending on one another. The numbers along a side of the line graph are called the scale.

Example 1:



The graph above shows how John's weight varied from the beginning of 1991 to the beginning of 1995. The weight scale runs vertically, while the time scale is on the horizontal axis. Following the gridlines up from the beginning of the years, we see that John's weight was 68 kg in 1991, 70 kg in 1992, 74 kg in 1993, 74 kg in 1994, and 73 kg in 1995. Examining the graph also tells us that John's weight increased during 1991 and 1992, stayed the same during 1993, and fell during 1994.

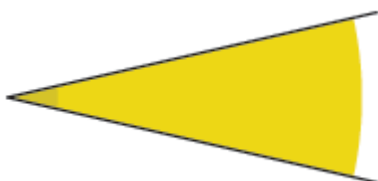
Example 2:



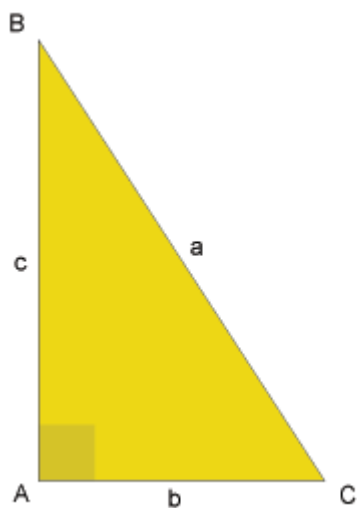
This line graph shows the average value of a pickup truck versus the mileage on the truck. When the truck is new, it costs \$14,000. The more the truck is driven, the more its value falls according to the curve above. Its value falls \$2,000 the first 20,000 miles it is driven. When the mileage is 80,000, the truck's value is about \$4,000.

ANGLES (Obtenidos de la BBC)

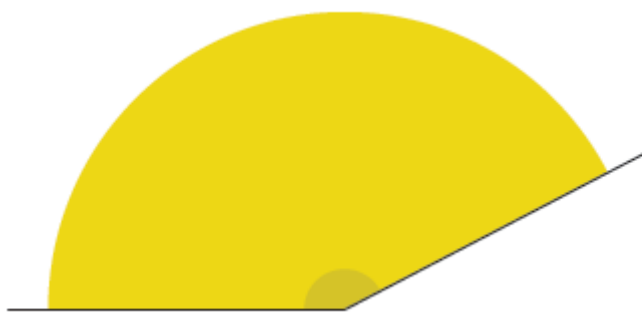
An **acute** angle is **less than 90°**.



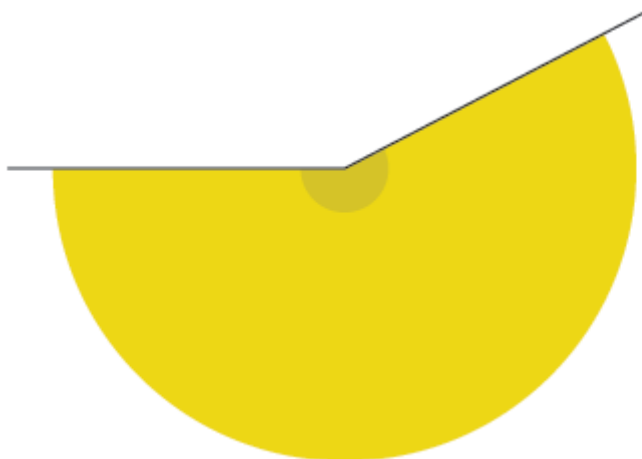
A **right angle** is **exactly 90°** .



An **obtuse** angle is **between 90° and 180°** .



A **reflex** angle is **greater than 180°** .





Map scale

Definition- The relationship between distances on a map and the corresponding distances on the earth's surface expressed as a fraction or a ratio.

One unit of measurement on the map -- 1 inch or 1 centimeter -- could represent 10,000 of the same units on the ground. This would be a 1:10,000 scaled map.

Large scale/Small scale

Cartographers talk about large and small scale maps. A large scale map shows a small area with a large amount of detail. A small scale map shows a large area with a small amount of detail. A good way to remember it: when you give a friend a map to your school or home, that's most likely a large scale map.

Think of a 1:1 map. Now that would show some details! 1:2 scales out and shows less, 1:10 less. So 1:100,000 shows less detail than 1:24,000.

The larger denominator (the second number) the smaller the scale. Large scale maps are 1:24,000 and larger. Intermediate scale maps occur in the 1:50,000 to 1:100,000 scale range. Small scale maps are 1:250,000 and smaller.

To Do

At [Mapblast](#), you can make streetmaps of US metropolitan areas (Europe soon). Go there, make a map of your neighborhood (you can even email it to someone), see the

scale and try to determine distances based upon the scale. How far is it from your home to school, for example. These maps also allow you to zoom in or out, thus changing the scale.

Great!

[Interactive Map Site](#)

Mathematics Topics-Coordinate System

Coordinate systems

Numeric methods of representing locations on the earth's surface.

Latitude and Longitude

The most commonly used coordinate system today is latitude and longitude- angle measures, expressed in degrees, minutes, and seconds.

Equator and Prime Meridian

The Equator and the Prime Meridian are the reference lines used to measure latitude and longitude. The equator which lies halfway between the poles is a natural reference for latitude. A line through Greenwich, England, just outside London, is the Prime Meridian.



Latitude- Parallels that run east-west.

Longitude- Meridians that run north-south.

Latitude runs from 0° at the equator to 90°N or 90°S at the poles. These lines of latitude, called parallels, run in an east-west direction. Lines of longitude, called meridians, run in a north-south direction intersecting at both poles. Longitude runs from 0° at the prime meridian to 180° east or west, halfway around the globe.

More on Degrees, Minutes, and Seconds

On the globe, one degree of latitude equals approximately 70 miles. One minute is just over a mile, and one second is around 100 feet. Length of a degree of longitude varies, from 69 miles at the equator to 0 at the poles. Because meridians converge at the poles, degrees of longitude tend to 0.

Longitude and Time

Since the earth rotates 360 degrees every 24 hours, or 15 degrees every hour, it's divided into 24 time zones- 15 degrees of longitude each. When it is noon at Greenwich, it is 10:00 A.M. 30 degrees W., 6:00 A.M. 90 degrees W., and midnight at 180 degrees on the opposite side of the earth.

Historical Note

The planet gave no clear direction on selecting the Prime Meridian, as it did with the equator lying half-way between the poles as the 0 degree of latitude. As late as 1881, there were 14 different prime meridians still being used on topographic survey maps alone. [The International Meridian Conference of 1884](#) adopted the [Prime Meridian line](#) passing through the Greenwich Observatory near London, England. Take a trip down the [Prime Meridian](#) and explore the countries that lie on it.

A new healthy snack bar called "Fibre-crunch" is being sold in the shops. Each bar weighs 40g and contains 2g of protein, 3g of fat and 35g of carbohydrate. What percentage of protein, fat and carbohydrate does "Fibre-crunch" contain?

Problemas para utilizar la proporcionalidad de forma sencilla, si en una hora recorre 8 km en 4 horas recorrerá 32; se trata de aplicar el concepto de multiplicación.

Shona cycles at an average speed of 8km/h . How far has she travelled if she cycles for $\frac{1}{4}$ hours?